



No July Club Meeting

Due to COVID-19 rules on gatherings

Socialize on the airwaves instead

Amateur Radio, communicating in isolation for over 100 years



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Pandemic Drone

A pandemic drone can be used to track temperatures, fever and social distancing.

New technology is making mass tracking of people and their health easier.

A pandemic drone can pick up heart rate, body temperature and monitor social distancing.

But the technology is also increasing concerns about privacy and data collection.

Software being developed at the University of South Australia in conjunction with Canadian drone manufacturer Draganfly could see drones used to monitor the health of people, including spotting sneezes and tracking whether they have a fever.

It is just one way technology could be used to track and slow the spread of a virus like COVID-19.

But experts warn that new surveillance technologies must include privacy safeguards before they are adopted.

Heart rate can be detected within 8 metres.

Professor Javaan Chahl, who holds positions with the University of South Australia and the Department of Defence, is developing software for the pandemic drone.

The device uses thermal cameras and artificial intelligence to measure some of the indicators of coronavirus in groups of people: heart rate, body temperature, coughing and sneezing.

"Heart rate can be measured in two different ways. From a drone, we normally would measure it by a subtle change in skin tone that's associated with each heartbeat. And it's caused by changing the volume of blood in the skin. It also causes slight movement."

The drone would also be able to detect a cough from "15-20 metres away", while heart rate can be detected within 6-8 metres with only a "very small" margin of error. It could also be used to monitor social distancing.

While still six months from completion, Professor Chahl hoped it would be used to collect data on a large scale and track patterns of behaviour to paint a broad picture of the spread of COVID-19 in a city, rather than monitor individuals. "When you look at thousands of people, or millions of people, you'll start to see a trend," he said. And I think we don't have systems in place to survey for that, particularly. It would be very useful to know how many people are suffering from symptoms associated with respiratory distress. So, if you see a lot of people coughing and sneezing and with elevated heart rates and breathing rates and fever, okay, that's good to know. And if that's increasing, that's very important to know."

Professor Chahl does acknowledge the technology could also be used to watch and target individuals if a future user wanted to. "All such technologies carry a risk with them," he said.

"I might think it's a very bad idea to use drones to chase people around who might be sick. But perhaps others might have different ideas. And it's very hard to restrain them from using it like that once the genie is out of the bottle."

Police in the US city of Westport, an hour north of New York, were trialling the software along with Draganfly, but pulled out last week over privacy concerns.

"There's a lot of discussion going on at the moment about how we manage that privacy so that you don't take away people's freedom, or start imposing on them unnecessarily," Professor Chahl said. But you do want to watch for the presence of this infectious disease. So there are a lot of challenges."

Artificial intelligence expert Professor Toby Walsh urged a cautious approach towards adopting technologies like the pandemic drone. "I think the devil is in the detail: how it's rolled out, what safeguards are put in place," he said. There's every reason that this technology could be a useful tool in our armoury with rolling back the restrictions and allowing people to go about somewhat more normal lives. But, equally, there are concerns that you'd have about people's privacy and about whether when normality has returned, that we are not finding ourselves in a big brother surveillance state."

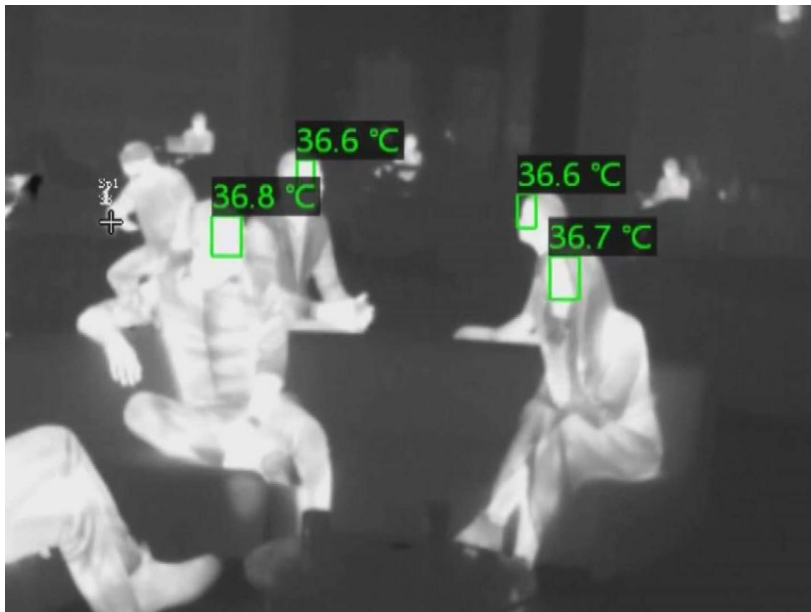
Several places in East Asia, including Hong Kong, Taiwan and South Korea, have taken a more technology-driven approach to fighting coronavirus, successfully slowing the rate of transmission without enforcing the same strict lockdowns seen in Australia and some European countries, and keeping shops and restaurants open. Everyone who lands in Hong Kong must download a mandatory phone app and wear a wristband for two weeks while in compulsory quarantine. The app and wristband work together to track the user's whereabouts, along with regular video calls from health officials.

Professor Walsh doubts that level of surveillance would go down well in Australia.

"These are extraordinary times, but I think those are extraordinary measures that I suspect most people in Australia would find too much down the road to taking us to what [authors] George Orwell, Huxley and other people have warned us about the surveillance state that we could be in," Professor Walsh said.

Another distinct feature of Hong Kong's tech-driven approach to tackling the virus is the routine use of temperature checks, which are a common sight at the entrance to restaurants, offices, shopping malls and government buildings across the city.

Australian entrepreneur Rustom Kanga hopes that temperature-taking technology will soon be more widespread here. His company iOmniscient has developed an automated fever scanning system which can operate through CCTV cameras to check the temperatures of people in crowds. He claimed it was accurate "to about 0.2 of a degree Celsius".



"Now and in the future, we will be releasing the lockdown, there'll be lesser restrictions, and in those environments we are going to still have to keep track of everyone. We are going to have to monitor people to make sure that there is no one round with a fever, because the fever is the first external indication, usually, of an infection of the coronavirus."

Dr Kanga said the software used artificial intelligence, including facial recognition, to automatically read the body temperature of "hundreds of people" at once in a crowd and alert authorities if someone had a fever. The system could then track them through a network of cameras until they could be

identified by a staff member or official. "It uses what is called a thermographic camera, which is a camera that can detect the heat of things in the environment," he said.

The use of facial recognition technology is highly controversial and concerns have long been raised by civil liberties groups about its use in public spaces and about the potential for authorities to use it to track citizens. But Dr Kanga said his software "anonymised" faces by default and people would only be identified when requested by the user. "Everyone's face can be redacted so that nobody sees anything, however, if there's a person with a fever, that person's image is sent to the smartphone or the paramedic so that he can be checked out."

Professor Walsh said technologies like this could be part of Australia's approach, but won't replace the need for social distancing. "It's worth pointing out those modern technologies are not going to be a panacea, they're not going to allow us to go back to our normal lives, we are still going to have to social distance, we are still going to have to keep ourselves isolated physically as much as possible from each other until we have a vaccine. And, until that point, our lives are going to be somewhat on hold."

~Internet

77 CELL PHONE TOWERS SET ON FIRE



Damaged cabling and telecommunications equipment is pictured following a fire at a phone mast, attached to the chimney at the converted Fearnley Mill residential apartment block complex in Huddersfield, Northern England, on April 17, 2020

A conspiracy theory that baselessly links 5G technology with the coronavirus has led to a series of arson attacks on cell phone towers in the UK. The attacks started in early April, and 77 towers have now been attacked, an industry group told Business Insider.

Engineers have also been attacked, with one stabbed and hospitalized according to the CEO of UK telecoms firm BT. A conspiracy theory that claims that 5G internet is behind the coronavirus outbreak has led to arson attacks on more than 70 cell phone towers in the UK.

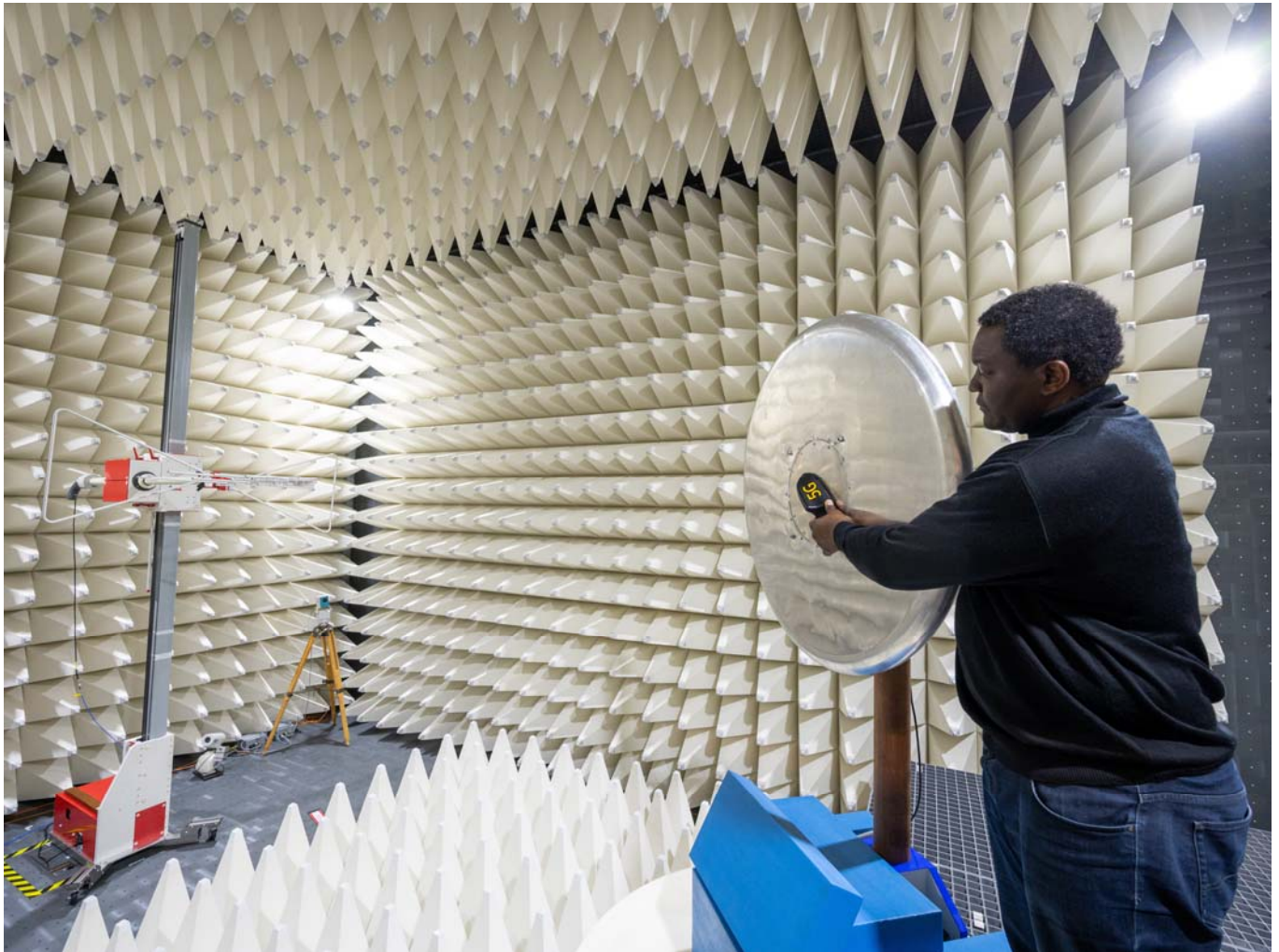
The conspiracy theory began to gain traction in the UK in late March and early April, coinciding with the rising number of cases in the country and its nationwide lockdown. Conspiracies around phone signals have existed for years, however. The scaremongering is thought to have led directly to arson attacks on mobile phone infrastructure. On April 15, Mobile UK, an organisation representing Britain's four mobile operators, said that roughly 50 phone masts had been attacked across the country – the majority of which were not actually 5G-enabled. The number has now risen to 77, and that the rate of attacks was thankfully slowing. "Daily attacks are very low now but have not stopped entirely," a spokesman said.



The inside of an attacked phone mast

Anti-5G conspiracy theorists don't just appear to be attacking masts, however. Philip Jansen, CEO of British telecoms company BT, said that one engineer had been violently assaulted while out maintaining network infrastructure. "We have 40 incidents where people have attacked, either physically or verbally, our staff. We've had engineers being driven at by people and swerve away at the last minute, and we've even had one Openreach engineer stabbed and put in hospital,"

The outbreak of attacks has been condemned by the heads of the four UK mobile operators. Mobile UK told BI in April: "Theories being spread about 5G are baseless and are not grounded in credible scientific theory. "Mobile operators are dedicated to keeping the UK connected, and careless talk could cause untold damage. Continuing attacks on mobile infrastructure risks lives and at this challenging time the UK's critical sectors must be able to focus all their efforts fighting this pandemic."



In a measuring room (absorber hall) the function of an intelligent antenna module with 5G transceiver (transmitter and receiver unit) is tested

Conspiracy theories around 5G have spread on social media, with Facebook, YouTube, and Twitter all taking action to try and curb the spread. One offshoot of the theory claims that 5G accelerates the spread of the virus by lowering the body's immune system and that the coronavirus is itself a fiction designed to cover up damage being done by 5G. Both these claims are false.

Arsonists in the UK have been destroying 5G phone masts, apparently spurred on by a coronavirus conspiracy theory. A bizarre new conspiracy theory links new 5G technology, which will increase mobile connectivity speeds, with the coronavirus outbreak. Proponents of the theory have set phone masts on fire and harassed telecoms engineers laying fibre-optic cables in the UK.

The baseless theory has been circulating on social media since at least January but appears to have picked up steam during the first week of April.

The UK government and telecoms industry have been forced to confront the conspiracy theory.

The theory runs roughly like this: the rollout of faster 5G internet is either causing or accelerating the spread of the coronavirus. It's hard to pinpoint the source of the theory, and BI first heard a variant of the rumour in early March. As the pandemic continues, the conspiracy appears to have picked up steam. The conspiracy theory and its various offshoots are baseless but have led to real-world harm, with over 70 arson attacks on phone masts around the country.

5G conspiracy theories have been around since at least 2019.

5G is the next generation of mobile broadband. It will offer faster speeds than 4G or 3G, and is currently being rolled out in different countries. There have been conspiracy theorists about the supposed harm of 5G radio waves since the tech began gaining public attention. The basic idea is: 5G is more powerful than 4G or 3G, and is therefore dangerous to humans and animals.

There is no evidence that 5G — or any other kind of radio waves — are harmful to people.

Using your phone relies on radio waves, which are on the low end of the electromagnetic spectrum, and as such produce non-ionizing radiation. This means they do not damage the DNA in cell tissue, and don't cause cancer. International radiation watchdog the International Commission on Non-Ionizing Radiation Protection (ICNIRP) set new guidelines for 5G frequency last month and confirmed that the frequencies at which 5G will be deployed will be safe.

"The guidelines have been developed after a thorough review of all relevant scientific literature, scientific workshops and an extensive public consultation process. They provide protection against all scientifically substantiated adverse health effects due to [electromagnetic field] exposure in the 100 kHz to 300 GHz range," ICNIRP chair Dr Eric van Rongen said.

As the coronavirus spread, the 5G conspiracy theory mutated to suggest that rollout of the tech had somehow exacerbated the pandemic. Full Fact's first debunking of the theory hinged on a Facebook post which claimed Wuhan in China – where the coronavirus outbreak first began – is also where 5G began to roll out.

The post rested on the pre-existing conspiracy theory that 5G suppresses people's immune systems.

It was posted to an anti-5G Facebook group, and was subsequently marked by Facebook as misinformation. According to Facebook, the post had just over 300 shares.

There is no evidence to suggest that Wuhan was the very first Chinese city to start building out 5G, but rather multiple reports found by Full Fact said it was among multiple cities selected to pilot the technology.

On March 13, Full Fact identified and debunked another more widely-shared Facebook post blamed billionaire Bill Gates. Bill Gates was blamed in one post for inventing the coronavirus.

According to Full Fact, this post claimed that coronavirus is a fiction invented to cover up the physical damage being done by 5G. It also claimed that the coronavirus was invented by Microsoft billionaire Bill Gates to control the world by creating a vaccine for it.

There is no coronavirus vaccine currently or a proven cure, but Gates has said he is funding vaccine candidates.

The post has now been removed from Facebook, but according to Full Fact, it was shared thousands of times.

The New York Times reported in April that conspiracy theories blaming Bill Gates for the pandemic were exploding online, and being picked up by some conservative pundits.

Coronavirus has spread rapidly in countries with no 5G.

As Full Fact points out in a more recent dismantling of the conspiracy theory, the coronavirus outbreak has had a profound impact on countries with no 5G coverage, such as Iran.

The theory had crystallised enough by March 26 that a British tabloid ran an article on it.

An article by the Daily Star was originally headlined "Coronavirus: Fears 5G WIFI networks could be acting as 'accelerator' for disease," but was subsequently changed to "Coronavirus: Activists in bizarre claim 5G could be acting as 'accelerator' for disease."

Some celebrities began to amplify the theory.

Actor Woody Harrelson shared a chunk of text on Instagram which suggested 5G could be “exacerbating” the pandemic.

The text is an excerpt from an article by Martin Pall, a retired professor from Washington State University, who has also pushed a theory that Wi-Fi is harmful to human health.

“A lot of my friends have been talking about the negative effects of 5G,” Harrelson wrote in the caption.

“Though I haven’t fully vetted it I find it very interesting,” he added.

The post had more than 25,000 likes at the time of writing.

A British TV presenter was investigated after appearing to link 5G and the coronavirus.

“This Morning” presenter Eamonn Holmes rebuked another journalist’s dismissal of the conspiracy theory live on television. “I totally agree with everything you are saying but what I don’t accept is mainstream media immediately slapping that down as not true when they don’t know it’s not true. No one should attack or damage or do anything like that, but it’s very easy to say it is not true because it suits the state narrative. That’s all I would say, as someone with an inquiring mind,” Holmes said.

Subsequently UK media regulator Ofcom launched an investigation after receiving 419 complaints from viewers. Holmes said he does not believe in the conspiracy theory, and that his comments had been “misinterpreted.”

In early April, arsonists upped their attacks on phone masts in the UK.

Phone masts in Birmingham, Liverpool, and Belfast were damaged in arson attacks in early April.

Not all the masts were necessarily 5G towers.

While it’s not yet absolutely certain what motivated these specific attacks, the mayor of Liverpool said he had received threats after condemning the 5G/coronavirus theory, and the Irish News reported that in footage of the mast being set on fire voices could be heard saying “f**k 5G.”

Mobile telecoms expert Peter Clarke discovered a Facebook group – now deleted – urging people to burn 5G towers, and reported it.

Mobile Networks are classified as Critical National Infrastructure, especially in these times when the public need to communicate remotely. Yet people are setting the infrastructure on fire while Facebook moderators think groups with such mast arson competitions are fine.

A video circulated on Twitter showing a woman accosting engineers laying cables.

The video was taken by a woman who approaches two engineers laying fibre-optic 5G cables, falsely claiming that they are not key workers and that 5G “kills people.” Telecoms engineers have been designated key workers by the UK government.

Britain’s big telecoms companies released an open letter appealing to people not to damage the masts or abuse their engineers.

EE, O2, Three, and Vodafone released the statement together.

“Not only are these claims baseless, they are harmful for the people and businesses that rely on the continuity of our services,” the companies wrote.

They said that in some cases abuse of engineers had hindered “essential network maintenance” from taking place. We stand united to protect Britain’s critical infrastructure alongside EE, Three and Vodafone.

We must put a stop on misinformation sharing and prevent vandalism to our networks, relied upon by the NHS, critical services, and you.

Vodafone UK CEO Nick Jeffery added that both police and counter-terrorism authorities are investigating the attacks.

CEO of BT Philip Jansen wrote 39 of the company’s engineers have been verbally or physically assaulted, and some have even received death threats.

Jansen added during an interview on April 21 that one engineer had been hospitalised after being stabbed. He also said that some engineers had been driven at by people in their cars, swerving away at the last moment.

The UK government addressed the spread of the conspiracy theory on April 5.

Cabinet Minister Michael Gove called the theory “dangerous nonsense,” and the national medical director of NHS England Stephen Powis condemned it in even stronger terms.

“The 5G story is complete and utter rubbish, it’s nonsense, it’s the worst kind of fake news,” said Powis.

“The reality is that the mobile phone networks are absolutely critical to all of us, particularly in a time when we are asking people to stay at home and not see relatives and friends. But in particular those are also the phone networks that are used by our emergency services and our health workers,” he added.

“I’m absolutely outraged, absolutely disgusted that people would be taking action against the very infrastructure that we need to respond to this health emergency,” said Powis.

UK lawmakers suggested the rumours could potentially be boosted by deliberate disinformation campaigns.

“We’ve called on the government to work with social media companies to stamp out deliberate attempts to spread fear about COVID-19 and it is right that they are being called to account for allowing disinformation on their platforms,” said Julian Knight, chair of the DCMS parliamentary committee.

“We’re also calling on Ofcom [the UK’s media watchdog] to investigate whether international news organisations are using social media to disseminate state-backed disinformation on COVID-19 in order to get around UK broadcasting regulation,” he added.

A rash of attacks came during the UK’s four-day Easter holiday from April 10 to 13, and industry group Mobile UK told Business Insider approximately 50 masts had been vandalised.

This included a mast that was providing coverage for an emergency coronavirus hospital in Birmingham. Mobile UK said that the vast majority of the attacked sites were not in fact 5G masts.

Big tech is taking some action to crack down on the conspiracy theories.

The coronavirus/5G conspiracy theories have visibly spread online.

A Facebook spokesman told Business Insider: “We are taking aggressive steps to stop misinformation and harmful content from spreading on our platforms and connect people to accurate information about Coronavirus.

“Under our existing policies against harmful misinformation, we are starting to remove false claims which link COVID-19 to 5G technology and could lead to physical harm.”

Meanwhile YouTube said it will remove videos which link 5G and the coronavirus.

“We have clear policies that prohibit videos promoting medically unsubstantiated methods to prevent the coronavirus in place of seeking medical treatment, and we quickly remove videos violating these policies when flagged to us,” a YouTube spokeswoman told Business Insider.

She added that “borderline” videos about 5G which don’t mention coronavirus may be allowed to remain on the site.

In May YouTube removed the YouTube channel of notorious conspiracy theorist David Icke for spreading the theory.

Facebook took down 2 anti-5G groups who were touting the theory.

The groups “Stop 5G Group” and “Destroy 5G Save Our Children,” held 60,000 and 2,500 members respectively. Researchers at Hope Not Hate found post inciting the destruction of phone masts on both groups.

Business Insider had previously reported members on the “Stop 5G Group” were pushing hydroxychloroquine – the as-yet unproven drug touted by Donald Trump – as a coronavirus cure.

~Internet, various sources

Self-isolation can lead to accents

You might not catch COVID-19, but you can definitely catch an accent.

It's not like the coronavirus pandemic will make us all talk funny. But according to recent research, even short isolation periods can cause some shifts in the way we shape sounds. Isolation can change the way you speak — but only slightly. The fact that isolation brings forth new accents is not new. There are numerous examples of isolated populations that started with one accent and ended with another or a different dialect altogether.

But even shorter periods of isolation can create micro-accents.

“You can't hear the differences very well because they are so small,” says Jonathan Harrington, a linguist at the University of Munich and lead author of the study, “But you can measure them.”

The catalyst for change in these very earliest stages of accent formation is thought to be communication density — who talks to whom and how often. Obviously, our communication patterns have changed significantly since the start of the lockdown, but are this sufficient to generate accents?

In order to test how this process happens, Harrington and colleagues recorded the speech of several individuals before and after they spent a few months isolated in the Antarctic as part of the British Antarctic Survey.

“We sought to predict these changes in Antarctica using an agent-based computational model applied to the same individuals' speech data recorded before they had left for Antarctica.

The situation in which Antarctic ‘winterers’ are together for several months is the closest present-day microcosm of former colonial settlement: there is no access to or from Antarctica in winter and the winterers are in regular (spoken) contact with each other,” the study reads.

The study found two types of phonetic changes among volunteers' vocabulary.

The first was a novel one: a phonetically more fronted /ou/, compared to their pre-Antarctica pronunciation.

The second was a slight convergence between participants when it came to vowel pronunciation.

Researchers predict that the more people spend time together, the more they start talking alike, but the cause of the former change is less clear.

Researchers note that there may also be other factors at play when it comes to explaining these phonetic differences and more research is required to understand how new accents form in isolation.

For instance, one of the volunteers' native language was German, and this may have had a slight effect on the other participants.

If you are stuck inside the house for a longer period of time, there is a chance that other peoples' accent might rub off on you, or that you'll start to develop new accents altogether — but these changes will almost certainly be imperceptible. It's not clear if the changes are temporary.

~Internet

YOTA - Youngsters on the Air (NZ)

Our NZ team has just started a YOTA page for the Oceania region, as us young hams in New Zealand have our own group of about 65 members. But we would like to expand to include more local people with the likes of young hams in VK, FK, YJ, YB, and so forth over the 8.5 million squared km that Oceania spans.

YOTA OC - Youngsters On The Air Oceania is now live on Facebook

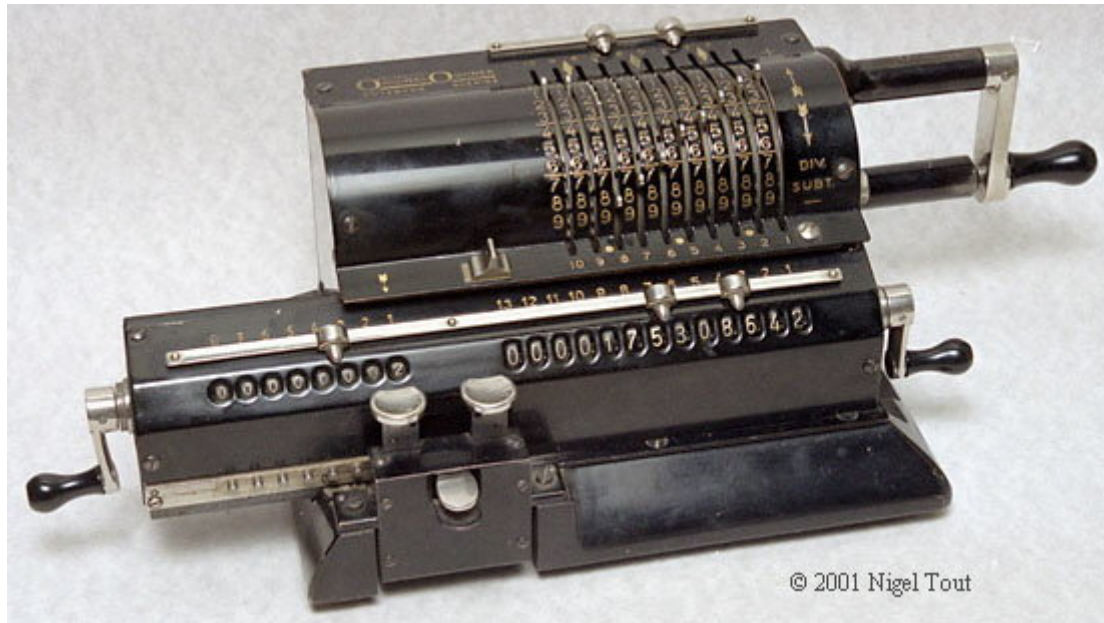
Check it out at <https://www.facebook.com/groups/YOTAOC>

#YOTA_YoungstersOnTheAir

#YoungAmateurRadioOperators 5-26 IARU

YOTA is a quickly growing group of young radio amateurs from around the world. It is our goal to get more young people interested in amateur radio and grow the amateur radio community. We will do this by hosting online and on-air events and also physical events like camps and the like.

Original Odhner Calculator



Original Odhner

Distinctive features: A Pin-wheel calculator.

The pin-wheel mechanism was the first commercially successful mechanical calculator mechanism that was designed for multiplication and division, as well as addition and subtraction.

The model pictured:

10-digit setting register, 13-digit accumulator register, 8-digit revolutions register.

Made in Sweden in the period 1935-1945.

345 x 140 x 115 mm (13.6" x 5.5" x 4.5"), 5 Kg (11 lbs.).

Basic method of operation - When one of the setting levers is moved to a number then that number of pins is raised on the corresponding pin-wheel (ie. moving a lever to '7' raises 7 pins).

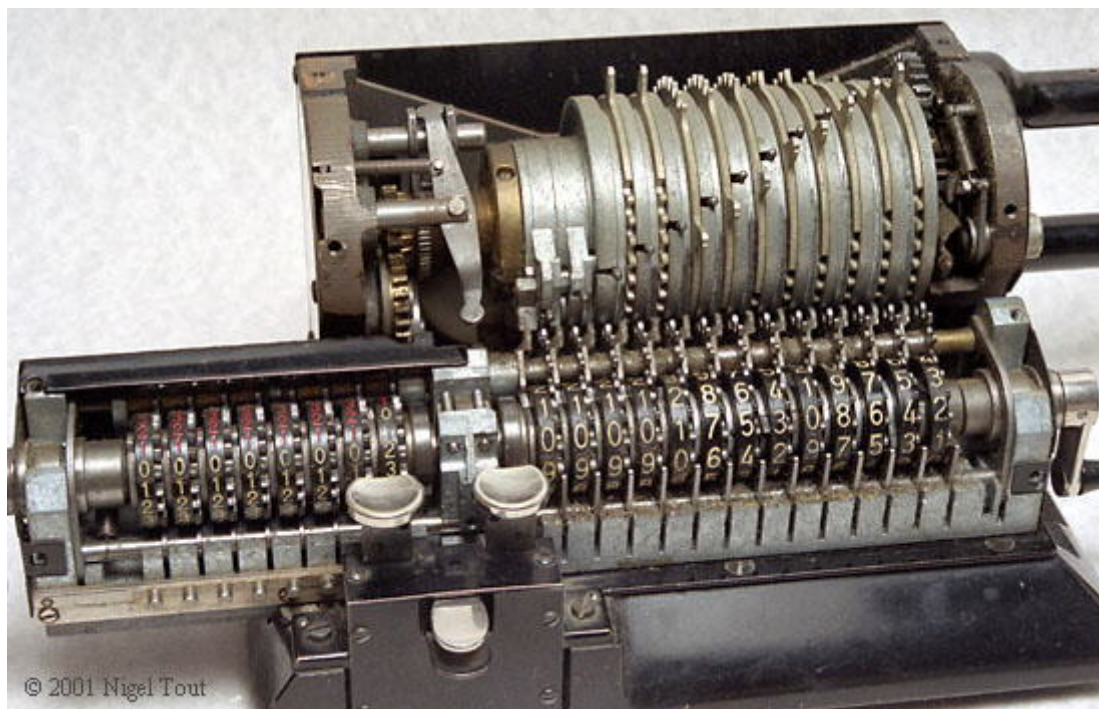
Turning the crank handle rotates all the pin-wheels, and their attached setting levers. The raised pins act as gear teeth and advance the individual accumulator wheels (with numbers at bottom right) by the number of pins, so adding the set number to the accumulator.

Multiplication is fairly straight forward since the handle can be turned several time quickly to add the same number to the accumulator. The numbered wheels at bottom left keep a record of the turning of the handles. Moving to the next decade involves pressing the appropriate lever at the front.

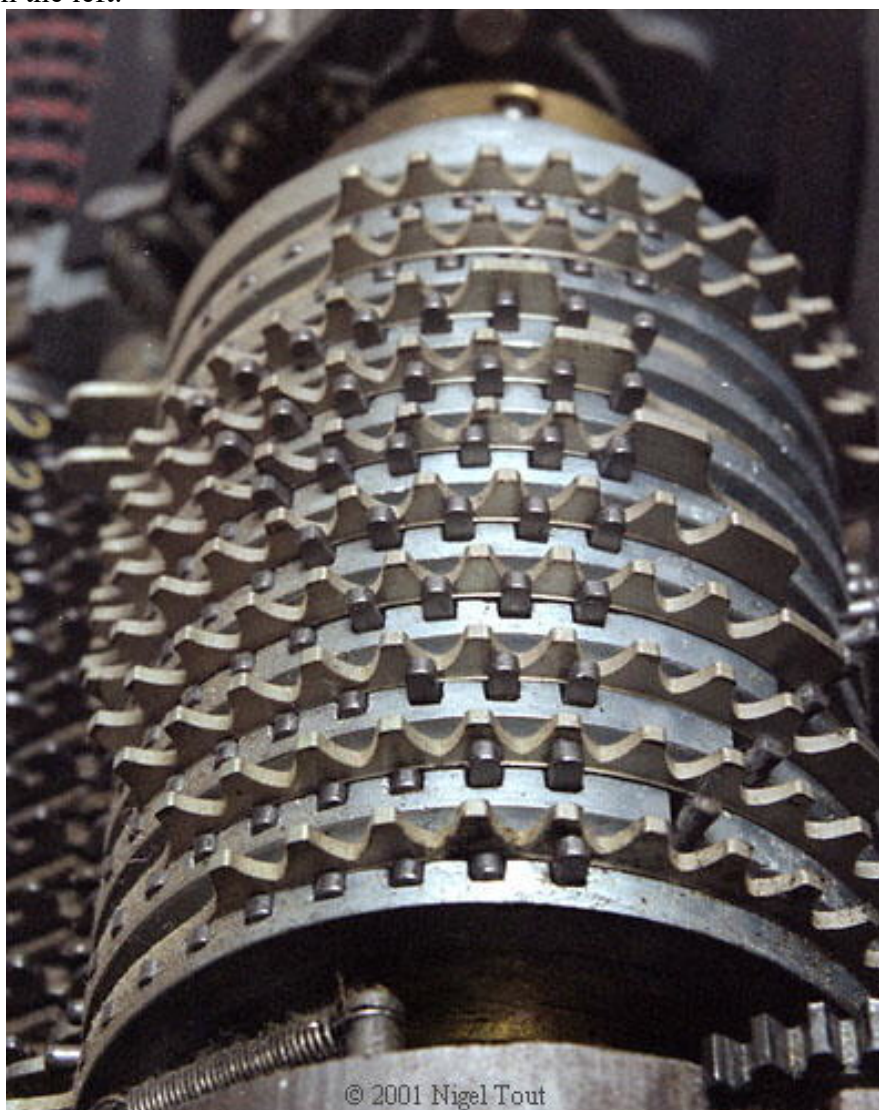
The small cranks on each side at the front are for clearing the device.

This type of calculator, the pin-wheel calculator, was invented by the Swdish engineer and entrepreneur Willgodt T. Odhner in St. Peterburg, Russia, in 1874. (A calculator on similar principles had been invented independently 2 years earlier by Frank Baldwin in the USA, but the Odhner was the successful design). Following the Russian Revolution of 1917 and the nationalisation of the factory there, production moved to Sweden and the name "Original Odhner" was adopted.

This was the most successful type of general purpose mechanical calculator (ie. intrinsically capable of multiplication and division and not just "adding machines"). Up to the early 1970s dozens of manufacturers made machines based on and with a general resemblance to the Odhner, as shown at the bottom of this page.



With front covers removed, showing the pinwheels, at the top, the accumulator register below, and the revolutions register on the left.

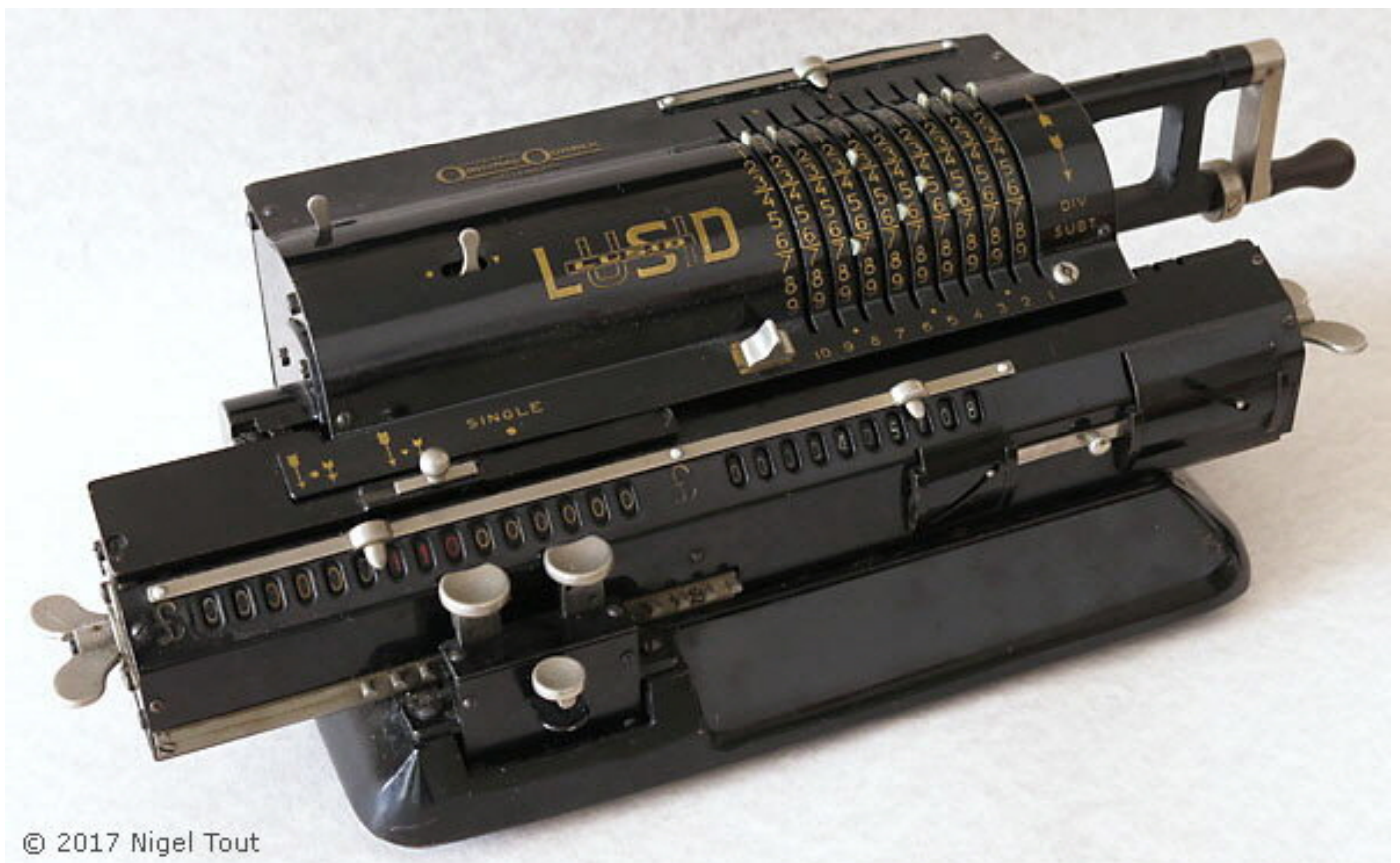


Close up of the pin wheels, looking from the right, with the number of pins raised on each wheel depending on the number set by each lever (from top to bottom 0087654321). These act as gear teeth when the crank handle is turned.



© 2010 Nigel Tout

A later model of Odhner pin-wheel calculator, from the 1950s-1960s, has the same layout as the older model shown at the top of this page but with a more modern design.



© 2017 Nigel Tout

Odhner *LUSID* calculator for use with the old British Sterling £sd currency.

~Internet

Australian researchers claim new internet speed record of 44.2 Tbps

Australian researchers shattered the record for the fastest internet speed achieved, hitting 44.2Tbps — or 1000 HD movies a second.

Australia's average broadband speed now sits below nine developing countries.

Australia's internet isn't exactly world-class, but it could one day lead the world in speed if it's the first to take advantage of a new discovery by some local scientists.

A team of researchers from three Melbourne universities have this week claimed the world's fastest internet speed using a single optical chip, which they said will facilitate faster networks with more capacity in the future.

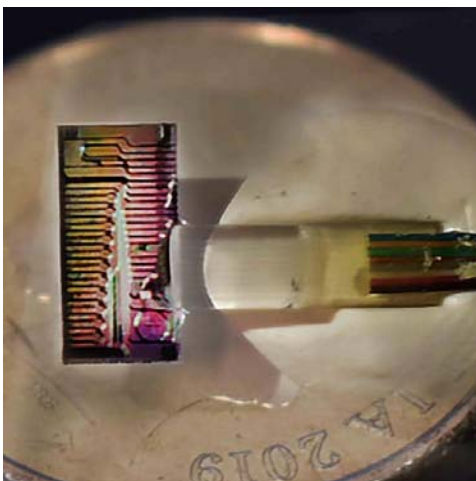


Australia has recorded a new internet speed record of 44.2tbps

The new record speed of 44.2tbps (terabits per second) shattered the previous record of 30.1tbps, and the chip used in the latest test is said to have used less than half the spectrum.

That speed is roughly one million times the speed you'd currently get on the most popular NBN bundle.

The researchers from RMIT, Monash and Swinburne universities used something called a micro-comb to replace 80 separate lasers inside a fibre optic cable with one chip.



← The integrated chip is smaller than a coin

Traffic and congestion on the internet is usually explained with the analogy of traffic on roads and highways – the more “cars” (internet users) on the “road” (network), the slower the traffic gets.

The latest development is like taking a whole heap of those cars off the road and putting their occupants on a bus (albeit a hypothetical bus that always runs on time and moves faster than the cars around it).

Not only does the chip communicate huge amounts of data, it also uses less power and takes up less space than current methods due to its integrated nature.

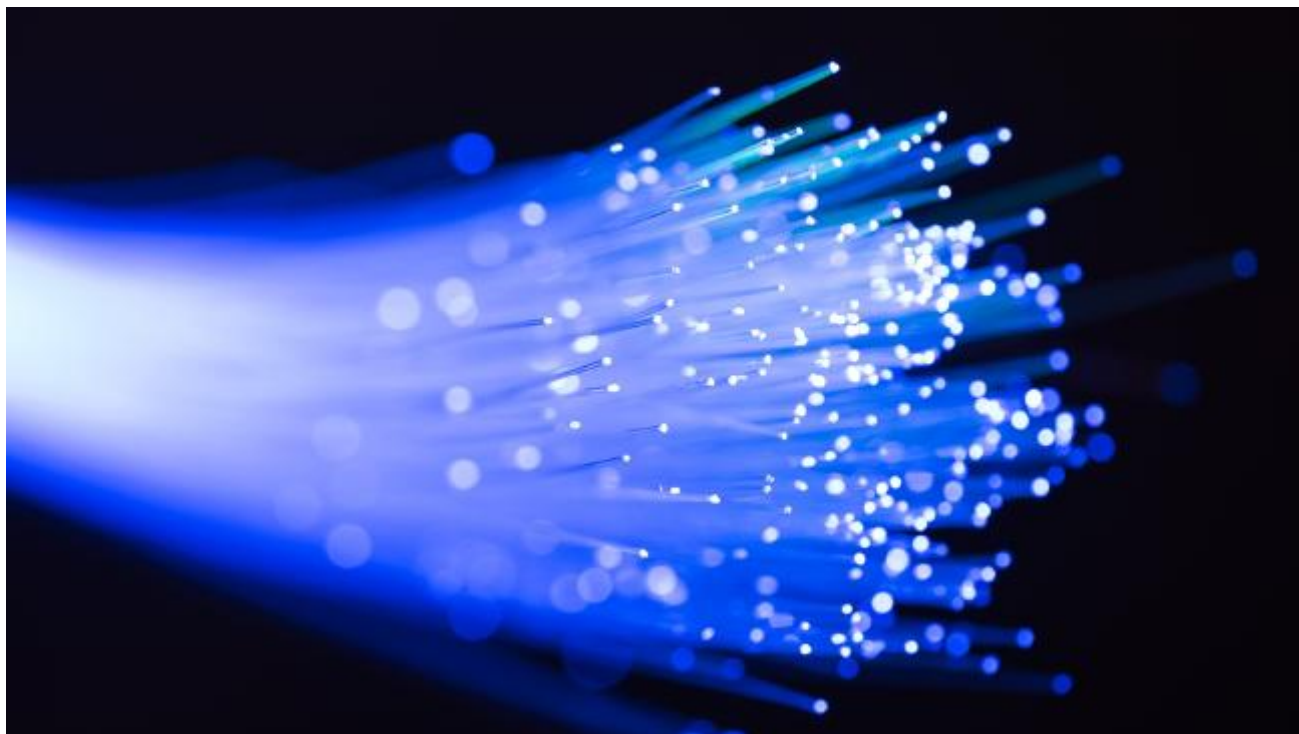
The researchers focused on the integration because it offered the biggest return on investment.

“The optical source is central to every link, and as such, perhaps has the greatest need for integration.

“The ability to supply all wavelengths with a single, compact integrated chip, replacing many parallel lasers, will offer the greatest benefits.”

The test was conducted using a dedicated fibre optic network used by research and education institutions, with the transmission being sent from the RMIT lab on Swanston St in Melbourne’s CBD to Monash University’s campus at Clayton through a 76.6 kilometre loop of fibre optic cables.

This reflects a shift in emphasis from long haul telecommunications networks covering thousands of kilometres to smaller metro-area and data centre networks described in the researchers’ paper.



An example of what’s inside a fibre optic cable

Demand on optical fibre networks, like parts of the national broadband network, are already growing at a rate of around 25 per cent a year, and co-lead author Dr Bill Corcoran, a lecturer in electrical and computer systems engineering at Monash University, said the current pandemic was providing a glimpse into the future, with millions suddenly jumping on the internet to work from home.

“We’re currently getting a sneak-peek of how the infrastructure for the internet will hold up in two to three years’ time, due to the unprecedented number of people using the internet for remote work, socialising and streaming,” Dr Corcoran said.

“It’s really showing us that we need to be able to scale the capacity of our internet connections,” he added. The integrated chip offers the chance to do that, and it’s likely it could even be retrofitted onto the NBN to increase its capability.

The network is expected to “complete” its rollout by the end of next month, but work will continue on the network in the future, making upgrades to increase capacity and speeds.

“What our research demonstrates is the ability for fibres that we already have in the ground, thanks to the NBN project, to be the backbone of communications networks now and in the future. We’ve developed something that is scalable to meet future needs,” Dr Corcoran said.

The discovery has few real-world applications in 2020, but in the future it could revolutionise what’s possible with the internet, and could be the next example of Australia leading the world on internet innovation.

The wireless internet protocol Wi-Fi, that enabled things like public access to internet at airports and cafes as well as in the home was invented following discoveries by the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

The agency is so proud of its work on Wi-Fi that it’s ranked as its top invention, ahead of things like plastic bank notes, the Hendra virus vaccine, and the Total Wellbeing Diet.

~Internet

The Internet began with a crash on October 29, 1969

The beginning of the Internet is the story of two large computers, miles apart, sending the message: “LO.” The world has never been the same.

In the late 1960s an experimental network of four computers called ARPANET (Advanced Research Projects Agency Network) was commissioned by the U.S. government. The computers were located at UCLA, SRI International (then known as Stanford Research Institute), UC Santa Barbara, and the University of Utah. ARPANET evolved into the network of computer networks we know as the Internet.

On October 29, 1969, the first message was sent between two ARPANET computers.

They tried to type in “LOGIN,” but the computers crashed after the first two letters.

“The breakthrough accomplished that night in 1969 was a decidedly down-to-earth one. The Arpanet was not, in itself, intended as some kind of secret weapon to put the Soviets in their place: it was simply a way to enable researchers to access computers remotely, because computers were still vast and expensive, and the scientists needed a way to share resources.

One of the most intriguing things about the growth of the internet is this: to a select group of technological thinkers, the surprise wasn’t how quickly it spread across the world, remaking business, culture and politics — but that it took so long to get off the ground.

Even when computers were mainly run on punch-cards and paper tape, there were whispers that it was inevitable that they would one day work collectively, in a network, rather than individually.”



On January 1, 1983, Transmission Control Protocol (TCP) and Internet Protocol (IP) were accepted as the standard protocols for the ARPANET and other computer networks. For some, the acceptance of TCP/IP as a common network communication language is considered the beginning of the Internet.

‘The 1969 connection was not just a symbolic milestone in the project that led to the Internet, but in the whole idea of connecting computers — and eventually billions of people — to each other,’ said Marc Weber, founding curator of the Museum’s Internet History Program. ‘In the 1960s, as many as a few hundred users could have accounts on a single large computer using terminals, and exchange messages and files between them. But each of those little communities was an island, isolated from others. By reliably connecting different kinds of computers to each other, the ARPANET took a crucial step toward the online world that links nearly a third of the world’s population today.

~Internet

Is AI-Enabled Voice Cloning the Next Big Security Scam?

A company that specializes in detecting voice fraud is sounding the alarm over an emerging threat. With the help of AI-powered software, cybercriminals are starting to clone people's voices to commit scams, according to Vijay Balasubramaniyan, CEO of Pindrop.

"We've seen only a handful of cases, but the amount of money stolen can reach as high as \$17 million," During a presentation at RSA, Balasubramaniyan said Pindrop has over the past year also investigated about a dozen similar cases involving fraudsters using AI-powered software to "deepfake" someone's voice to perpetrate their scams.

"We're starting to see deepfake audios emerge as a way to target particular speakers, especially if you're the CEO of a company, and you have a lot of YouTube content out there," he said. "What these fraudsters are starting to do is use that to start synthesizing your audio."

The scheme builds upon a classic attack known as business email compromise, where the fraudster will use fake emails to pretend to be a senior officer at a company. The goal is to fool a lower-level employee to send a large money request to the fraudster's bank account.

Deepfaking someone's voice can take the scheme to the next level. Just hearing your CEO's voice on a phone can convince you to follow orders and comply with a large money request, even though it may not be legit, Balasubramaniyan said.

"All you need is five minutes of someone's audio and you can create a fairly realistic clone," he added. "If you have five hours or more of their audio, then you can create something that's not perceptible by humans." In one of the investigated cases, Balasubramaniyan said the victim CEO actually had little public content revealing his voice. However, the CEO did do monthly all-hands meetings at his company, which were recorded and later exposed in a breach. "Then they (the scammers) started to use this audio content to synthesize his voice," Balasubramaniyan added.

The good news is that the deepfaking threat is still small relative to other phone call-related scams involving identity theft. That said, the technology to authentically clone voices is already here (but fortunately not widespread).

During his presentation, Balasubramaniyan demoed an internal system his company created to synthesize voices from public figures. He showed it off, deepfaking President Donald Trump's voice to say the US should give North Korea a "bloody nose."

The technology works by searching for Trump's previous audio recordings on the internet to simulate his voice, which takes less than a minute. "You can generate any kind of audio content, and create this on demand," Balasubramaniyan added.

Clearly, the threat is disturbing. In addition to perpetrating scams, audio deepfakes also risk spreading misinformation that can dupe the public. Fortunately, Pindrop and other computer scientists are working on solutions to detect deepfakes. In Pindrop's case, the company has created an AI-powered algorithm that can discern human speech from deepfake audio tracks. It does this by checking how the spoken words are actually pronounced and whether they match with human speech patterns.

"We start looking for the deformities," he added. "Is the pace at which he is saying (the words) even humanly possible?"

Nevertheless, the looming threat of audio deepfaking may force users to be more careful when it comes uploading their voice to the internet.

Balasubramaniyan predicted there may one day be a market for anti-voice cloning security services, like there is for data security. "Your going to have companies that create mechanisms to detect these attacks," he said. "These system needs to start protecting your audio content if ever a version of you shows up that's not you."

~Internet

Death of the Dunny

Public urinals could be phased out in wake of coronavirus pandemic

It seems everything is changing as we embrace our new normal – even toilets which experts have described as a “potpourri for bugs”.



Jobs that put workers in contact with a large number of people are at risk of triggering the next outbreak. Urinals could be relegated to the history books while foot-operated flushes and taps with sensors may be the future of public toilets in a post-pandemic world.

At least that's the suggestions being made in a UK report which has recommended sweeping changes to public toilets in order to make them COVID-19 safe moving forward.

The British Toilet Association has advised companies and councils install bathrooms with “touchless” technology such as sensor soap dispensers and taps, foot-operated flushes.

And the recommendations could lead the way for toilet safety standards across the globe, including Australia.

Australasian College for Infection Prevention and Control president and Monash University School of Nursing and Midwifery associate professor Philip Russo said public toilets were a “potpourri for bugs simply because of their high use and frequently touched surfaces”.

Clever design in public toilets such as the changes suggested by the British Toilet Association as well as “good hand hygiene and frequent cleaning” were key to stopping the spread of coronavirus in this environment, he said.

“Any design that minimises or eliminates using hands (e.g. self opening/closing doors, foot operated taps etc) are preferable,” Assoc Prof Russo said.

The British Toilet Association’s managing director Raymond Martin said that older public facilities may need to have their “guts ripped out” to make way for more hygienic solutions.

Instead, public toilets should be installed with “touchless” technology such as sensor soap dispensers and taps, foot-operated flushes, he said.

Urinals could be taken out and replaced with gender neutral cubicles, with Mr Martin saying the “traditional public convenience is becoming a thing of the past”.

He is calling on the government to step in and invest in ways to make public toilets in Britain more hygienic to enable the country to get back on its feet.

“Toilets have a massive commercial effect on an area, which is why they are one of the first things you plan in any new shopping centre,” Mr Martin said.

“When you get people to come to you, you want them to stay. Tourist offices all over the country should be telling visitors: ‘Come see our castle, come see our beaches, come see our state-of-the-art toilets’.”

~Internet

BEEP OFF

We've all heard that annoying "beep-beep-beep" backing up signal used on trucks forklifts etc.

Now comes a COVID-19-BEEP to "back off"

Construction workers across the United States may soon be required to wear a device on their hard hats that emits an alarm if they come within six feet of another employee at a job site. As they get closer, the alarm gets louder.

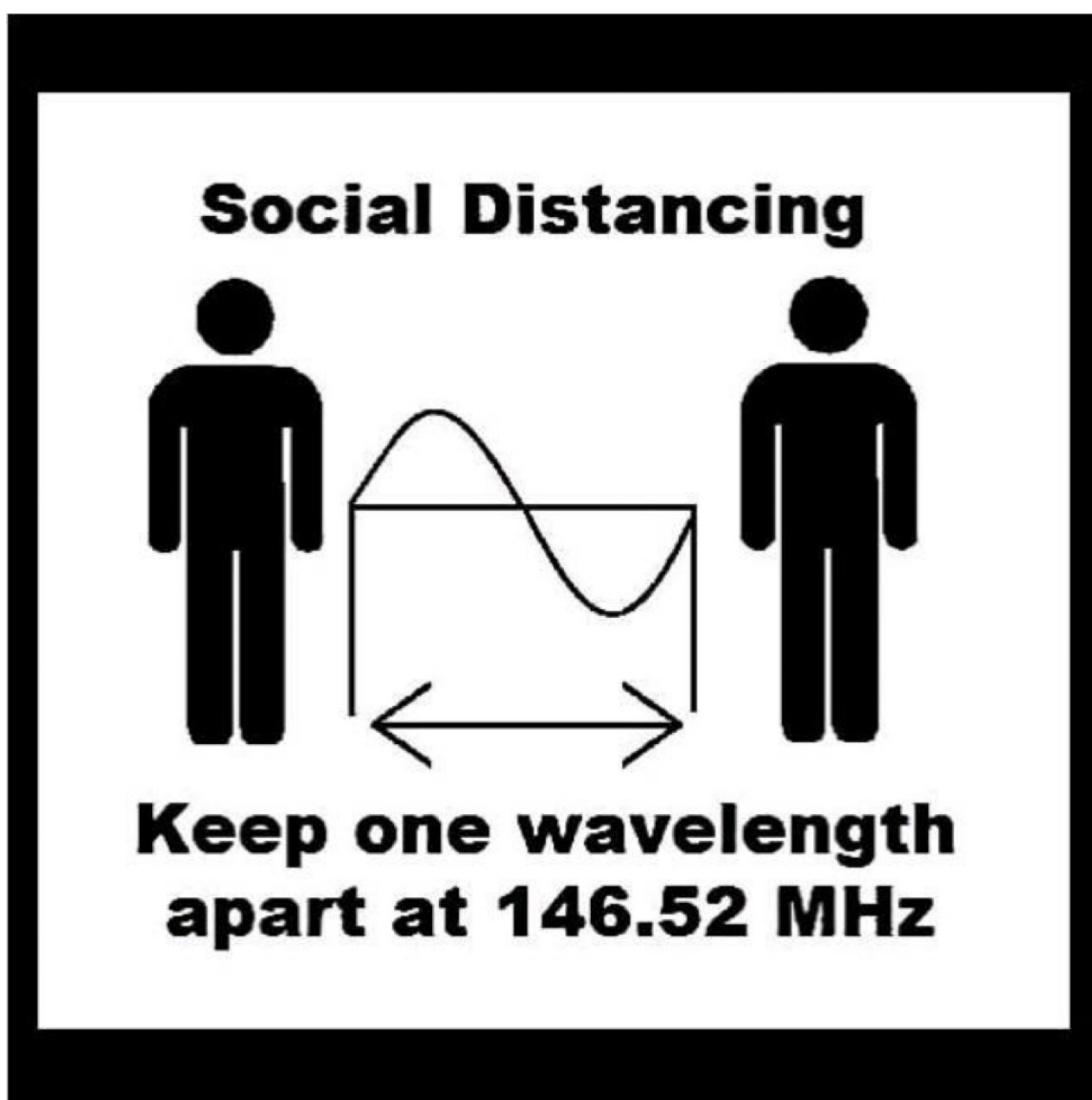
The tool, called Proximity Trace, does not just function as a loud reminder for workers to practice the social distancing guidelines from the US Centres for Disease Control and Prevention. It will also give employers a road map to perform contact tracing.

The device relies on ultra-high frequency radio signals, to give employers a list of workers who came into contact with each other.

If a construction worker is then found to be infected with Covid-19, employers can pull up historical data that identifies which employees came into contact with them and when. Triax Technologies, the company behind Proximity Trace, already develops tools that let construction companies and other industries track a workforce's location, attendance and even their performance.

Maybe we need a patch on the Australian COVID-19 app to "beep beep" us into correct social distancing.

~WIA News



FM Modulation Monitor

INTRODUCING THE EMDRC FM MONITOR

A new 2 metre on-air information service is now under test by the EMDRC and available for club members living near Burwood to try out.

Introducing Australia's first on-air real time FM Modulation Monitor that determines the peak audio deviation for any narrow band FM signal that it receives, and reports the result to you immediately using spoken word.

Please note that the service is experimental and members may find that it is unavailable at times when the equipment is being updated.

TELL ME HOW TO USE IT

1. THE SYSTEM'S RECEIVER MUST "HEAR" YOU 100% FULLY QUIETING IN ORDER TO DELIVER AN ACCURATE RESULT. This is important. Even the slightest noise on your signal will make the result inaccurate. Don't bother whilst you are mobile.

2. Turn off any CTCSS tone

3. Key up your transmitter and talk in a normal voice for 5 seconds, then release your PTT. The FM Monitor responds with a report of your peak deviation, which ideally should be close to, but not exceeding the ideal value of 5 KHz. Around 4-5KHz is fine.

4. If you don't speak for long enough, the system will respond with a "Try again" message. You must speak for 5 seconds in order to allow the system sufficient time to properly assess your FM deviation level.

5. If you get an unusually high result – greater than 5.8KHz, you probably have noise on your signal and the result will probably be incorrect.

6. If you are not sure if you are fully quieting into the device, transmit 5 seconds of absolute silence (without CTCSS of course). The monitor will respond with a result of 0.0KHz deviation if you are noise free. If you get any other value, you are not fully quieting and your result will not be correct.

TELL ME WHERE TO GO

You will find the service running now on 145.250MHz, which is the recommend frequency for "FM Simplex Information Beacon" services in the March 2020 band plan.

The callsign this is running under is VK3LL, however this will change.
The system is operating from the EMDRC club rooms in Burwood.

TELL ME HOW IT WORKS

The incoming resolved audio is sampled at over 32,000 times each second and the peak minima and maxima for both positive going and negative going parts of the demodulated audio waveform are sampled through an A to D Converter (ADC) and evaluated within a microcontroller.

These ADC values are compared with predetermined samples from an accurate Agilent test instrument using an algorithm that determines the peak deviation within an accuracy of +/-2% across the 300-3000Hz audio

spectrum. The result is then spoken back to the user using audio samples stored on flash memory and reconstructed via a simple Digital to Analog Converter (DAC).

The CW ident is generated using PWM and a sine lookup table to create a low THD sine wave at 1 KHz.

There is also an ability to record and play back messages, however these has not been enabled for this project.

The system has almost perfectly flat audio response – from 300 to 3 KHz within 0.5dB – beyond which audio rolls off.

Any white noise present on the signal will also be included in the result, so it is important to be fully quieting to get an accurate result.

Since the audio response below 300Hz is intentionally attenuated, it is currently not possible to accurately measure the deviation of just CTCSS signals alone, without voice.

FAQ

Q. How much TX power is it running?

A. The transmitter currently runs 25 Watts and may be increased later to 50.

Q. What is the effective range?

A. From its current location (the club rooms), the range is a few kilometres in each direction. Later the committee may decide to relocate it somewhere else for extended coverage.

Q. Can I use it to check my DTMF deviation?

A. Yes.

Q. What is considered the “correct” FM deviation?

A. The amateur service in Australia has mostly standardised on 5 KHz deviation

Q. Will it help me to know how close I should hold my microphone?

A. Yes. That was the one of the principal reasons for this unit.

Q. Can I use it on HF/CW/SSB/Fusion/DStar?

A. Sorry, no. It only works on narrow band 2m FM signals.

Ralph VK3LL

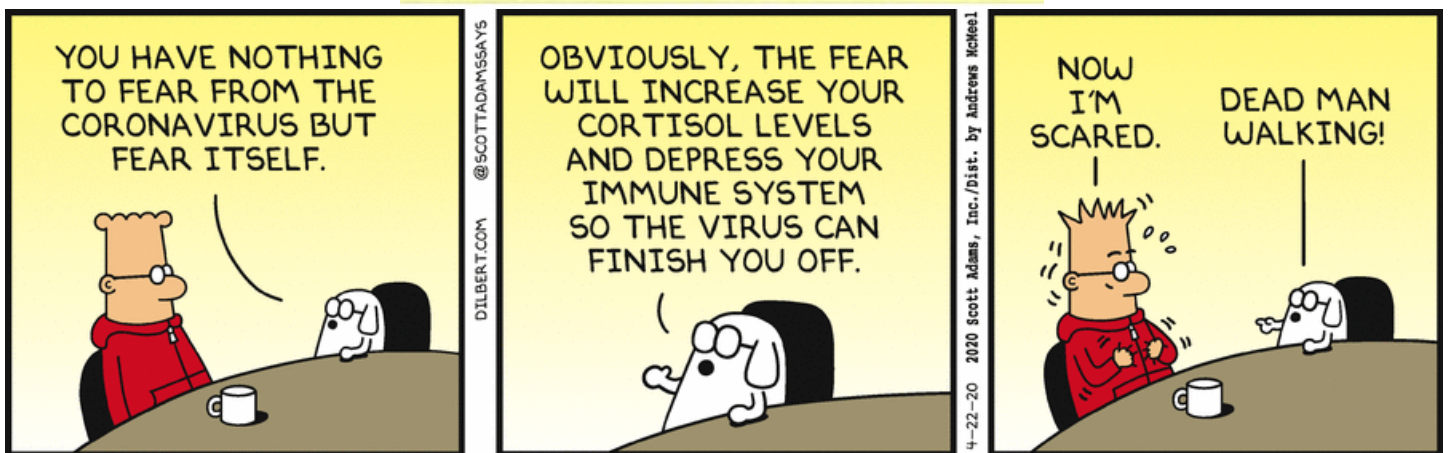
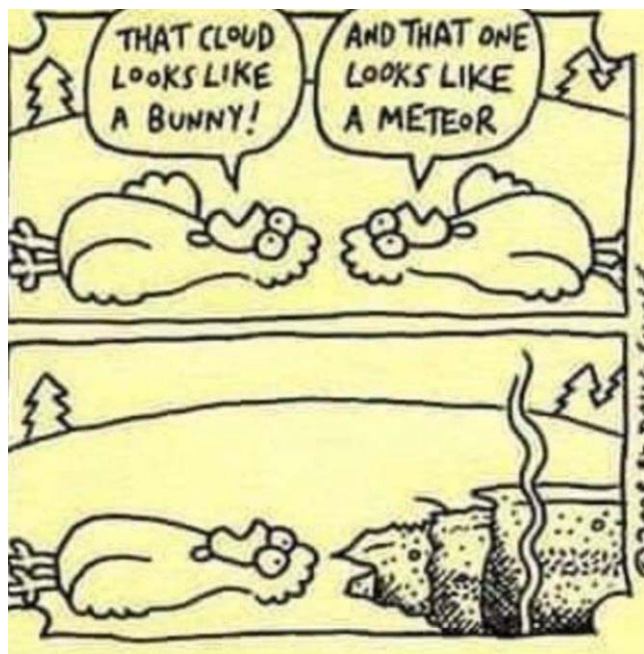


I decided to give it ago as I am only about 8km from the EMDRC clubrooms.

It came back S9+20dB

It told me my deviation was too high, but I forgot I had been using AM earlier that day, when I put the microphone gain back to the usual correct position, I came back as 5 KHz deviation – spot on.

~Mick VK3CH



New Siracha Hand Sanitizer

not only will it kill germs but it will stop you touching your eyes, face and other places a second time



Après Vélo
SCHOOL OF LEARNING

THIRTY
FIVE
CENTS

I'm not buying another
radio for at least
12 months

AND
OTHER HILARIOUS JOKES
YOU CAN TELL YOURSELF





THE 4 DIPSHITS OF THE APOCALYPSE



Mechanical or Civil?

What's the main difference between Mechanical and Civil Engineers?

Mechanical Engineers build weapons, Civil Engineers build targets

A mathematician, a physicist and an engineer

A mathematician, physicist, and engineer are all trying to find the volume of a yellow bouncy ball.

The mathematician gets his callipers out and measures the diameter, then evaluates the integral.

The physicist fetches a bowl of water, drops the ball in and measures the displacement.

The engineer strolls up with book in hand, checks for a serial number and looks up the volume in his yellow bouncy ball table.

The Constipated Engineer

Did you hear the one about the constipated engineer? He managed to work it out with a pencil. Turns out it was a natural log.

The fire joke

There's a fire in the middle of a room and 3 buckets of water in the corner.

A physicist walks in, takes a bucket of water, pours it around the fire and waits for the fire to put itself out.

An engineer walks in and pours a bucket on the fire, it doesn't go out so he goes off to check the fire safety standards.

A mathematician walks in, looks at the fire and the remaining bucket of water, convinces himself there's a solution and walks out.

A physicist, a chemist and an engineer

A chemist, a physicist, and an engineer are sailing out at sea. The boat sinks and they're marooned on a desert island. Luckily, they have a bag with a can of food in it, but no tin opener.

The chemist tries to open the can first by trying to erode it. No luck.

The physicist takes off his glasses and focuses sunlight on the can to try and burn the lid off. No joy.

Finally, the engineer shouts "Hold on, I've got an idea! Let's assume the can is open!"

The engineer's wife

A wife asks her husband, an engineer, "Darling, can you please go to the shop buy one pint of milk and if they have eggs, get a dozen!"

Off he goes. Half an hour later the husband returns with 12 pints of milk.

His wife stares at him and asks, "Why on earth did you get 12 pints of milk?"

"Well... they had eggs" he replied.

Three lawyers and three engineers were travelling by train to a conference. At the station, each lawyer bought a ticket whereas the engineers bought only one ticket between them.

'How are you going to travel on a single ticket?' asked one lawyer.

'Wait and watch', answered one of the engineers.

When they boarded the train, the lawyers took their seats, but the three engineers crammed into a toilet and closed the door behind them. Shortly after the train started, the ticket collector arrived. He knocked on the toilet door and asked, "Ticket, please." The door opened just a crack and a single arm emerged with a ticket in hand. The ticket collector took it and moved on.

Seeing this, the lawyers decided to do the same thing on the return trip, so when they arrived at the station they bought only one ticket. To their astonishment, the engineers didn't buy any. 'How are you going to travel without a ticket?' asked one of the perplexed lawyers.

"Wait and watch", answered an engineer.

In the train, the three engineers crammed into a toilet and the three lawyers into another nearby. Soon after the train started, one of the engineers got out of the toilet and walked to one where the lawyers were hiding.

He knocked on the door and said, "Ticket, please..."

Bubba and Billy Ray were standing at the base of a flagpole, looking up.

A woman walked by and asked what they were doing.

"We're supposed to find the height of the flagpole," said Bubba, "but we don't have a ladder."

The woman took a wrench from her purse, loosened a few bolts, and laid the pole down, then she took a tape measure from her pocket, took a measurement, announced, "Eighteen feet, six inches," and walked away.

Billy Ray shook his head and laughed.

"Ain't that just like a blonde? We ask for the height and she gives us the length!"

NEVARC Nets



40M Net

Monday, Wednesday and Fridays
10am Local time (East coast)

7.095 MHz LSB

Approximately + or – QRM

7.097 MHz has been used for a while now

Hosted by Ron VK3AHR

“Australia Ham Radio 40 Meter Net”

80M Net

Wednesday 20:30 Local time

3.622 MHz LSB

Hosted by Ron VK3AHR

Using the club call VK3ANE

2M Nets

Monday at 2000 local time on
VK3RWO repeater

146.975 MHz

President, VK2VU, Gary
Vice President, Tom VK3NXT
Secretary, VK2FKLR, Kathleen
Treasurer, Amy



NEVARC CLUB PROFILE

History

The North East Victoria Amateur Radio Club (NEVARC) formed in 2014.
As of the 7th August 2014, Incorporated, Registered Incorporation number A0061589C.
NEVARC is an affiliated club of the Wireless Institute of Australia.

Meetings

Meetings details are on the club website, the Second Sunday of every month, check for latest scheduled details.
Meetings held at the Belviour Guides Hall, 6 Silva Drive West Wodonga.
Meetings commence with a BBQ (with a donation tin for meat) at 12pm with meeting afterwards.
Members are encouraged to turn up a little earlier for clubroom maintenance.
Call in Via VK3RWO, 146.975, 123 Hz tone.

VK3ANE NETS

HF
7.095 MHz Monday, Wednesday, Friday - 10am Local time currently using 7097 MHz
3.622 MHz Wednesday - 8.30pm Local time

VHF
VK3RWO Repeater 146.975 MHz—Monday - 8pm Local time
All nets are hosted by Ron Hanel VK3AHR using the club callsign VK3ANE

Benefits

To provide the opportunity for Amateur Radio Operators and Short Wave Listeners to enhance their hobby through interaction with other Amateur Radio Operators and Short Wave Listeners. Free technology and related presentations, sponsored construction activities, discounted (and sometimes free) equipment, network of likeminded radio and electronics enthusiasts. Excellent club facilities and environment, ample car parking.

Website: www.nevarc.org.au

Postal: **NEVARC Secretary**
PO Box 69
Wahgunyah Vic 3683

Facebook: www.facebook.com/nevicARC/

All editors' comments and other opinions in submitted articles may not always represent the opinions of the committee or the members of NEVARC, but published in spirit, to promote interest and active discussion on club activities and the promotion of Amateur Radio.

Contributions to NEVARC News are always welcome from members.

Email attachments of Word™, Plain Text, Excel™, PDF™ and JPG are all acceptable.

You can post material to the Post Office Box address at the top of this page, or email magazine@nevarc.org.au

Please include a stamped self-addressed envelope if you require your submission notes returned.

Email attachments not to exceed 5 Mb in file size. If you have more than 5 Mb, then send it split, in several emails to us.

Attachments of (or thought to be) executable code or virulently affected emails will not be opened.

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While we strive to be accurate, no responsibility taken for errors, omissions, or other perceived deficiencies, in respect of information contained in technical or other articles.

Any dates, times and locations given for upcoming events please check with a reliable source closer to the event.

This is particularly true for pre-planned outdoor activities affected by adverse weather etc.

The club website <http://nevarc.org.au> has current information on planned events and scheduled meeting dates.

You can get the WIA News sent to your inbox each week by simply clicking a link and entering your email address found at www.wia.org.au The links for either text email or MP3 voice files are there as well as Podcasts and Twitter. This WIA service is FREE.